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Cont

6. (Amended) A process for producing a single-crystalline film,

comprising:

A2 a step of disposing a smectic liquid crystal material exhibiting a uniform molecular alignment in a smectic layer between a pair of boundaries having a thickness,

cooling and solidifying the smectic liquid crystal material through its smectic phase into a single-crystalline film, and

said smectic liquid crystal retaining a single crystal state having a uniform molecular crystalline alignment over the thickness.

REMARKS

Claims 1 and 6 have been amended in order to recite the present invention with the specificity required by statute. The subject matter of the amendment may be found in the specification as filed, *inter alia*, at page 1, lines 8-10. Accordingly, no new matter has been added.

Claims 1-9 are rejected "under 35 U.S.C. §102(b)" as being anticipated by Satoh U.S. Patent No. 6,294,229. Initially, Applicants wish to point out this reference was not published until September 25, 2001. Accordingly, Satoh is not prior art under 35 U.S.C. §102(b), but under 35 U.S.C. §102(e) only, since it was filed August 20, 1999. For that reason, the commonly-assigned reference may be applied for purposes of anticipation only, not for purposes of obviousness. See 35 U.S.C. §103(c).

In this regard, according to the Examiner, Satoh

teaches a film for optical elements having an upper polarizing plate and a lower polarizing plate. The film can be a single crystalline film.

This rejection is respectfully traversed.

By way of background, however, prior to setting forth their bases for traversal, Applicant would first like to discuss briefly the disparate meanings of the term “single-crystalline” (as recited in the claim) and the liquid crystal material taught by Satoh. It is earnestly thought that such elucidation will simplify for the record the unobvious and patentable nature of the present invention.

Satoh is cited by the Examiner for disclosing a film retaining a fixed liquid crystal orientation at room temperature (col. 2, lines 26-28). As is well-known to those of ordinary skill in the art, a liquid crystal is characterized by optical anisotropy. See, for example, McGraw-Hill Dictionary of Scientific and Technical Terms, 5th Ed., at page 1151.

In contrast thereto, a crystal is characterized by a crystalligraphic orientation of which the order is substantially higher than that of a liquid crystal, see specification at page 11, lines 7-24. The present invention recites a single-crystalline film which retains a single crystal state, e.g., a crystal wherein the same crystalligraphic orientation is uniformly retained. See McGraw Hill at page 1832.

Satoh does not teach or suggest that the optical film can be crystalline instead of liquid-crystalline. See, for instance, Satoh at col. 2, lines 26-27. Moreover, Satoh plainly teaches away from Applicants’ crystalline material since Satoh’s film is characterized by a molecular twist alignment as illustrated in Fig. 5. Additionally, Satoh Example 1, col. 27, lines 9-14 describes

From this result it turned out that the directors of the liquid crystalline polyesters tilted with respect to the substrate and that the orientation obtained was not a uniform tilt orientation (a state or orientation in which the director-substrate surface angle is constant in the film thickness direction). (Emphasis added).

As the Examiner will readily appreciate, even forgetting for the moment that the present invention recites a single-crystalline material, Satoh's description of the tilted state in Fig. 5 also plainly contrasts with the "uniform crystalline alignment over the thickness" recited in the amended claims.

Accordingly, the single-crystalline film of the present invention is not anticipated by the anisotropic (liquid-crystalline) film of Satoh.

In view of the above amendments and remarks, Applicants submit that all of the Examiner's concerns are now overcome and the claims are now in allowable condition. Accordingly, reconsideration and allowance of this application is earnestly solicited.

Claims 1-9 remain presented for continued prosecution.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,


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VERSION WITH MARKINGS TO SHOW CHANGES MADE TO CLAIMS

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1. (Amended) A single-crystalline film having a thickness, said single-
crystalline film retaining a single crystal state having uniform molecular crystalline
alignment over the thickness [order] provided through phase transition from a liquid crystal
phase.

6. (Amended) A process for producing a single-crystalline film,
comprising:

a step of disposing a smectic liquid crystal material exhibiting a
uniform molecular alignment in a smectic layer between a pair of boundaries having a
thickness [regulation function], [and]

[a crystallization step of] cooling and solidifying the smectic liquid
crystal material through its smectic phase into a single-crystalline film, and

said smectic liquid crystal retaining a single crystal state having a
uniform molecular crystalline alignment over the thickness.